EVALUATION REPORT

Company **Comcast Communications**
Application # **7257**
Plant # **15290**

1. Background:

Comcast Communications has applied for an Authority to Construct and/or Permit to Operate the following equipment:

S-1 Standby Generator (471 HP), Caterpillar, Model D100P2

2. Emission Calculations:

S-1
The proposed generator (S-1) uses a Caterpillar engine. According to the California Air Resources Board (CARB) certification data for the Caterpillar engine (engine family C2CPXL15.8ESK), it is CARB certified to meet the following emission rates:

CO = 0.33 gm/bHP-hr
NOx + HC = 3.89 gm/bHP-hr
PM = 0.043 gm/bhp-hr

No other CARB-certified emission data exists for NOx and HC separately. However, according to the manufacturer's technical data sheet, the following are the emission rates for the combustion products:

POC < 0.07 gm/bhp-hr
NOx < 5.62 gm/bhp-hr
CO < 0.24 gm/bhp-hr
PM < 0.054 gm/bhp-hr

To allow the applicant maximum operating flexibility, emissions for NOx, CO, POC, and TSP were based on the BACT2 emission limits and these are the limits which are identified in their proposed permit conditions. The emission factor for SO2 is based on 0.05% wt. sulfur limit for fuel. Per the Air Toxics Risk Screening results, Comcast Communications shall be limited to operating the generator (S-1) only 100 hours per year.

PM10 = TSP (Diesel Particulate) = 0.15 gm/bhp-hr
CO = 2.75 gm/bhp-hr
NOx = 6.9 gm/bhp-hr
POC (HC) = 1.5 gm/bhp-hr
SOx = 0.052 lb/MMBTU

Estimated Fuel Usage = 22.3 gal/hr(100 hr/yr) = 2,230 gal/yr
Heat Input = 22.3 gal/hr(7.1 lb/gal)(19,300 BTU/lb/10^6 BTU/MMBTU) = 3.06 MMBTU/hr

PM10 (Diesel Particulate)

PM10 = 0.15 g/bhp-hr(471 HP)(1 lb/454 g)(100 hr/yr) = 15.56 lbs/yr > 0.5 lbs/yr
PM10 = 0.008 TPY

TOXICS

Because the diesel particulate emissions are greater than the toxic trigger level (0.6 lb/yr), an Air Toxics Screening was required. According to risk screening (see May 13, 2003 memo), the maximum cancer risk is estimated to be less than 10 in a million, as long as the generator has a stack height of at least 6.833 feet above grade, has a vertical stack, and operates for no more than 100 hours per year. The permit conditions for this generator (S-1) shall include these requirements. As a result, the generator (S-1) can be estimated to have a maximum cancer risk of less than 10 in a million, which is acceptable under the District's Risk Management Policy and the risk screen passes.

Carbon Monoxide (CO)

CO = 2.75 gr/bhp-hr(471 HP)(1 lb/454 g)(100 hr/yr) = 285 lbs/yr
CO = 0.14 TPY

Nitrogen Oxide (NOx)

NOx = 6.9 gr/bhp-hr(471 HP)(1 lb/454 g)(100 hr/yr) = 715lbs/yr
NOx = 0.36 TPY

Precursor Organic Compound (POC)

POC = 1.5 gr/bhp-hr(471 HP)(1 lb/454 g)(100 hr/yr) = 156 lbs/yr
POC = 0.08 TPY

Sulfur Dioxide (SOx)

SOx = 0.052 lb/MMBTU(3.06 MMBTU/hr)(100 hr/yr) = 16 lbs/yr
SOx = 0.008 TPY

3. Statement of Compliance:

With an annual operating limit of 100 hours per year, the emergency generator (S-1) complies with Regulation 9-8. Because the emissions of NOx, CO, and POC for this source are estimated to exceed 10 pounds per day, the emergency generator is subject to Best Available Control Technology (BACT) review. However, the generator (S-1) does meet BACT2 emission limits for NOx, CO, and POC.

Because the emergency generator (S-1) emissions for this new facility does not exceed 15 TPY, offsets are not triggered.

Regulation 10 - New Source Performance Standard and Regulation 11 - Hazardous Pollutants requirements are also not triggered. Because this application is ministerial (Permit Handbook Chapter 2.3), the requirements of the California Environmental Quality Act (CEQA) are not triggered.

Because this generator (S-1) is located within 1000 feet of Roosevelt Middle School (460 Arguello Blvd., San Francisco, CA), a public notice is triggered.

4. Conditions

I recommend the following conditions for S-1:

1. The owner/operator shall operate S-1 in compliance with the requirements of Regulation 6 ("Particulate and Visible Emissions"). [basis: Regulation 6]

2a. The owner/operator shall operate S-1 for no more than 100 hours in any consecutive 12-month period for the purpose of reliability testing or in anticipation of imminent emergency conditions. Emergency conditions are failure of a regular power supply. [basis: Regulation 9-8-330.2]

2b. The owner/operator may operate S-1 for an unlimited amount of time for the purpose of providing emergency standby power during emergency conditions (as defined in Part 2a). [basis: Regulation 9-8-330.1]

3a. The owner/operator shall equip S-1 with a non-resettable totalizing counter, which records hours of operation for each engine. [basis: Regulation 9-8-530]

3b. The owner/operator shall maintain the following monthly records in a District-approved log for at least 2 years and shall be made available to the District upon request:
1) total hours of operation for S-1
2) hours of operation under emergency conditions for S-1 and a description of the nature of the emergency condition
3) fuel usage at S-1
[basis: Regulation 9-8-530]

4. The owner/operator shall maintain the stack height of the generator (S-1) to be at least 6.833 feet above grade and the exhaust shall have a vertical stack. [basis: Toxics]

5. The owner/operator shall operate S-1 to not exceed the following emission rates when tested at 100% load:

a. Diesel particulate emissions	**0.15 g/BHP-hr**
b. Nitrogen Oxides (NOx)	**490 ppmv @ 15% O_2**
c. Carbon Monoxide (CO)	**319 ppmv @ 15% O_2**
d. Hydrocarbons (POC)	**309 ppmv @ 15% O_2**

[basis: TBACT/BACT]

5. Authority to Construct:

I recommend that the Authority to Construct be waived and a Permit to Operate be issued to Comcast Communications for the following:

S-1 Standby Generator (471 HP), Caterpillar, Model 3456

6. Exemptions:

None.

12/80-ER1

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By M.K. Carol Lee
Senior Air Quality Engineer

Date_____